

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DELL TECHNOLOGIES INC. AND DELL INC.,
Petitioners,

v.

CLOUD BYTE LLC
Patent Owner.

Case No. IPR2025-01286
U.S. Patent No. 9,482,632

PATENT OWNER'S PRELIMINARY RESPONSE

TABLE OF CONTENTS

I. INTRODUCTION1

II. OVERVIEW2

 A. The '632 Patent (EX1001)2

 B. Hira (EX1005).....4

III. GROUND 1: HIRA AND SHIGA DO NOT RENDER
OBVIOUS ANY CHALLENGED CLAIM.....7

 A. The Petition Fails to Establish that Hira Discloses or
Renders Obvious Estimating or Determining
Temperatures “in a Predetermined Position of the ICT
Equipment” (All Claims)7

 B. The Petition Fails to Establish that Hira Discloses or
Renders Obvious Estimating Temperatures “When a
Quantity of Intake Air into the ICT Equipment Is
Appropriate” (All Claims)..... 12

 C. The Petition Fails to Establish that Hira Discloses or
Renders Obvious Estimating an “Upper Limit of Possible
Temperatures” (All Claims)..... 14

 D. The Petition Fails to Establish that Hira Discloses or
Renders Obvious Determining an Abnormality When a
Detected Temperature Is “Beyond the Upper Limit” (All
Claims) 19

 E. The Petition Fails to Establish a Reasonable Likelihood
of Prevailing on the Dependent Claims 23

IV. CONCLUSION 23

EXHIBITS

EX2001	U.S. Pat. App. Pub. No. 2009/0323277
EX2002	U.S. Pat. App. Pub. No. 2002/0135496
EX2003	Dkt. 94 (Second Amended Scheduling Order)
EX2004	Docket Navigator Statistics
EX2005	U.S. Court's median time-to-trial statistics for the Eastern District of Texas
EX2006	Dkt. 119 (Order Setting Markman Hearing)
EX2007	Hira Invalidity Claim Chart for the '632 Patent (B2)
EX2008	Shiga Invalidity Claim Chart for the '632 Patent (B3)
EX2009	Declaration of Dr. Kevin Almeroth
EX2010	CV of Dr. Kevin Almeroth

I. INTRODUCTION

For the reasons explained in Patent Owner's Request for Discretionary Denial, the Board should exercise its discretion to deny these petitions given the significant settled expectations and the impending trial in the parallel litigation.

However, there are also significant flaws with the merits of the Petition. The Petition fails to establish that any of the challenged claims are unpatentable because: (1) it fails to identify any disclosure in Hira that relates to estimating or detecting temperatures of equipment in a "predetermined position" as claimed; (2) it admits that Hira does not disclose estimating temperatures "when a quantity of intake air into the ICT equipment is appropriate" and relies entirely on expert testimony to supply this missing limitation; and (3) Hira does not disclose or use an "upper limit of possible temperatures" to identify clogged dust filters, and instead uses a very different approach from that claimed in the '632 Patent.

Petitioners do not rely on Shiga for disclosure of any of these limitations, and thus the proposed combination cannot cure these deficiencies in the petition. Further, each of the above limitations appears in every independent claim of the '632 Patent, and thus Petitioners cannot demonstrate a reasonable likelihood of prevailing as to any claim.

II. OVERVIEW

A. The '632 Patent (EX1001)

The '632 Patent relates to “an abnormality detection device that detects an abnormality of a cooling function of ICT (Information and Communication Technology) equipment such as a server.” EX1001, 1:12-15. Abnormalities can include, for example, when a dust filter is clogged and “the quantity of intake air decreases,” or when a cooling fan is down. *Id.*, 1:28-31. In both examples, “the inside of the case cannot be cooled down.” *Id.*

The claims are directed to particular systems and methods that detect such abnormalities by “estimat[ing] an *upper limit of possible temperatures in a predetermined position* of ICT equipment *when a quantity of intake air into the ICT equipment is appropriate*,” where the “upper limit” is based on the “operational status of the ICT equipment” and “an intake air temperature.” *E.g.*, EX1001, Cl. 1. An abnormality is determined when the “detected equipment temperature in the predetermined position” exceeds the “upper limit.” *Id.* The operational status of the equipment and the intake air temperature are also used to “determine[] a rotation speed of the cooling fan.” *Id.*

The specification provides additional context regarding the estimated “upper limit” recited in the claims. For example, the specification teaches that

the system can store information about a “range of intake-air temperatures” and a “range of CPU temperatures”¹ associated with a “load on the CPU.”² EX1001, 3:62-66. For example, for an intake air temperature T_a , within a predetermined range T_{a1} and T_{a2} , and for a CPU load L , within a predetermined range L_1 and L_2 , the allowable CPU temperature range is in between T_{c1} and T_{c2} , as shown in Figure 3 (reproduced below). EX1001, Fig. 3; *see also id.*, 3:62-4:16.

FIG. 3

165 FAN-ROTATION-NUMBER AND TEMPERATURE-RANGE STORING PART

INTAKE-AIR TEMPERATURE	CPU LOAD	FAN ROTATION NUMBER	EXHAUST-AIR TEMPERATURE RANGE	CPU TEMPERATURE RANGE
$T_{a1} \leq T_a < T_{a2}$	$L_1 \leq L < L_2$	R1	$T_{b1} \leq T_b < T_{b2}$	$T_{c1} \leq T_c < T_{c2}$
$T_{a1} \leq T_a < T_{a2}$	$L_2 \leq L < L_3$	R2	$T_{b2} \leq T_b < T_{b3}$	$T_{c2} \leq T_c < T_{c3}$
⋮	⋮	⋮	⋮	⋮
$T_{a1} \leq T_a < T_{a2}$	$L_{10} \leq L < L_{11}$	R10	$T_{b10} \leq T_b < T_{b11}$	$T_{c10} \leq T_c < T_{c11}$
$T_{a2} \leq T_a < T_{a3}$	$L_1 \leq L < L_2$	R1'	$T_{b1'} \leq T_b < T_{b2'}$	$T_{c1'} \leq T_c < T_{c2'}$
$T_{a2} \leq T_a < T_{a3}$	$L_2 \leq L < L_3$	R2'	$T_{b2'} \leq T_b < T_{b3'}$	$T_{c2'} \leq T_c < T_{c3'}$
⋮	⋮	⋮	⋮	⋮
$T_{a2} \leq T_a < T_{a3}$	$L_{10} \leq L < L_{11}$	R10'	$T_{b10'} \leq T_b < T_{b11'}$	$T_{c10'} \leq T_c < T_{c11'}$
⋮	⋮	⋮	⋮	⋮

¹ The specification also contemplates storing and using information relating to exhaust-air temperature to detect abnormalities. *See, e.g.*, EX1001, 3:66-4:21, Fig. 3. Because Petitioner relies on Hira’s purported disclosure of CPU temperatures, the discussion herein focuses on the ‘632 Patent’s use of CPU temperatures for abnormality detection.

² The CPU load represents the “operational status” of the equipment. EX1001, 4:36-40.

In this way, the system can associate upper and lower limits of acceptable CPU temperatures with different combinations of intake-air temperatures and CPU loads. *See id.*, 4:6-16. In addition, the CPU temperature ranges are determined by “actually measur[ing]” the “CPU temperatures ... when the ICT equipment [] is normally operating (when an abnormality like clogging of the filter is not occurring),” *i.e.*, when the ICT equipment is in its predetermined position and the quantity of air intake is appropriate (because the filter is not clogged). *Id.*, 4:17-21.

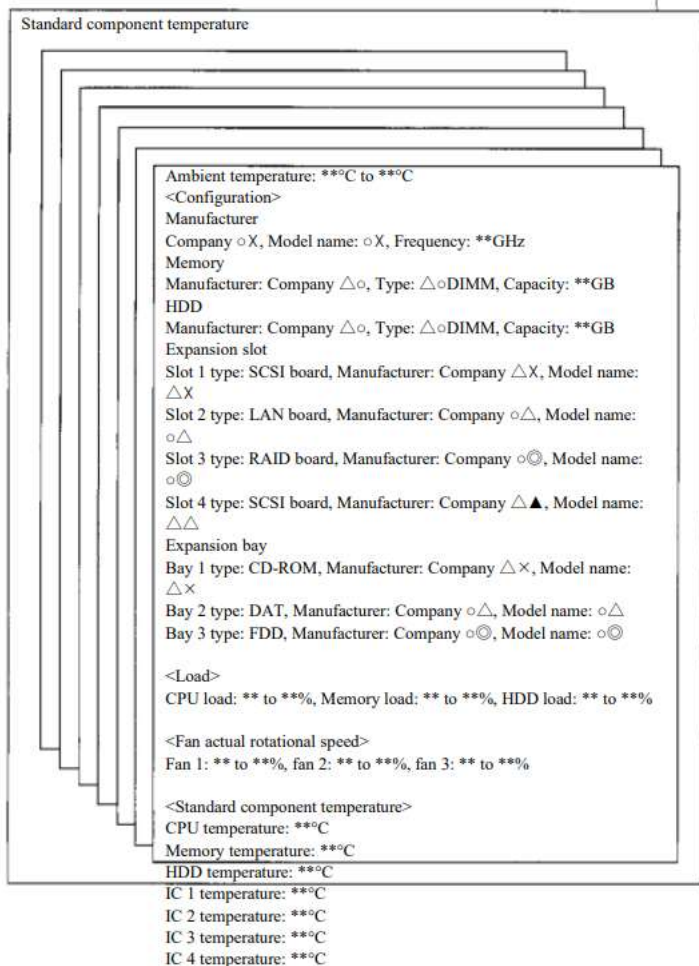
To detect abnormalities during subsequent operation, an upper limit of the CPU temperature is estimated for the detected intake air temperature and operational status (*e.g.*, CPU load). EX1001, 5:40-51, 7:38-45. The upper limit may be the maximum value of the CPU temperature range stored and associated with a detected combination of intake-air temperature and CPU load. *Id.*, 5:7-13. If the detected CPU temperature “is beyond the upper limit of the CPU temperature range,” then an abnormality is detected. *Id.*, 6:9-14; *see also id.*, 7:45-49.

B. Hira (EX1005)

Hira is not directed to monitoring cooling systems, like the '632 Patent, and instead narrowly focuses on detecting “dust filter clogging status.”

EX1005, Abstract. As a result, Hira uses a different technique from that claimed in the '632 Patent.

Of particular relevance here, Hira does not maintain or use a *range* of component (e.g., CPU) temperatures to determine clogging status. Instead, Hira only stores “*standard* component temperatures” for different combinations of ambient temperature, hardware configuration, load, and fan speed. EX1005, [0017]. Figure 3 of Hira (reproduced below) confirms that these “standard” temperatures are a single temperature value for each component, and not a range of temperatures. For example, while ambient temperature is reported as a range of temperature (“**°C to **°C”), the standard component temperatures are reported as a single value for each component (“CPU temperature: **°C). EX1005, Fig. 3.



Hira also does not use an upper limit of a range of temperature values to determine filter clogging status. Instead, Hira uses the singular *standard component temperature* for a given ambient temperature, hardware configuration, load, and fan speed, and sets that standard component temperature as the threshold value. EX1005, [0025] (“The component temperature threshold value ... is obtained by extracting component temperatures applicable to the current system status from standard component temperature 15, The standard component temperature information within

the component temperature threshold value 19 becomes the component temperature threshold value used when detecting dust filter clogging status.”), Fig. 4. The component temperature threshold value—which is just the standard component temperature for the applicable system status—is then used to compute the ratio of actual component temperature to the threshold value, and that ratio (as a percentage) is then used to determine the extent to which the dust filter is clogged. *Id.*, [0026]-[0027]; *see also id.*, Fig. 6. Hira does not store or estimate any upper or lower limits for component temperatures, and it does not determine whether a component is operating beyond any temperature limit.

III. GROUND 1: HIRA AND SHIGA DO NOT RENDER OBVIOUS ANY CHALLENGED CLAIM

A. The Petition Fails to Establish that Hira Discloses or Renders Obvious Estimating or Determining Temperatures “in a Predetermined Position of the ICT Equipment” (All Claims)

Every independent claim (*i.e.*, claims 1, 8, and 9) require “estimat[ing] an upper limit of possible temperatures *in a predetermined position of [the] ICT equipment*” and “detect[ing] ... [a] temperature *in [the] predetermined position.*” The Petition relies exclusively on Hira for these limitations, but fails to establish that Hira discloses or renders them obvious. *See* Pet. 30-43 (1[b]), 46-50 (1[d]); 69-70 ([8c]), 71-72 ([8f]), 74 (Claim 9, “by an estimating unit...”), 75 (Claim 9, “by a determining unit...”); EX2009, ¶¶65-66.

The Petition never identifies what, in Hira, purportedly discloses estimating or determining temperatures “in a predetermined position of the ICT equipment.” EX2009, ¶67. Instead, the Petition generally cites to Hira’s “component temperature threshold value 19,” which is selected from among a plurality of “standard component temperature[s] 15,” as purportedly disclosing the claimed “upper limit of possible temperatures in a predetermined position of ICT equipment when a quantity of intake air into the ICT equipment is appropriate.” Pet. 34-35. Yet nothing in “component temperature threshold value 19” references a “*position*” of ICT equipment, nor does the Petition explain how or why “position” may be inferred from any of the information included in “component temperature threshold value 19.”

Specifically, Hira discloses that the “component temperature threshold value 19” is simply the “standard component temperature 15” that is “applicable to the current system status.” EX1005, [0025]. That information includes “ambient temperature, configuration, load, actual fan rotational speed, and standard component temperature.” *Id.*; *see also id.*, Fig. 4 (illustrating the same information as part of the component temperature threshold value 19). But the Petition does not explain how or why any of these items corresponds to a *position* of the ICT equipment; to the contrary, the Petition maps each of these items to *different limitations*. *See* Pet. 34

(mapping the “standard component temperature” to “upper limit of possible temperatures”), 36 (mapping the “actual fan rotational speed,” “hardware configuration,” and “load” to “operational status of the ICT equipment”), 37 (mapping the “ambient temperature” to “intake air temperature”). Accordingly, the Petition does not map any of these to the “predetermined position of the ICT equipment.” EX2009, ¶68. And component temperature threshold value 19 contains no other information, and thus cannot otherwise disclose the claimed “predetermined position of the ICT equipment.” *Id.*

The Petition also argues that the component temperature threshold values are for “a particular system location (e.g. ambient air temperature).” Pet. 34. However, Petitioners do not cite to any disclosure in Hira that supports this assertion. EX2009, ¶69. Petitioners cite to paragraphs 25, 31, and 36 of Hira, but each of these paragraphs only discloses the categories of information discussed in the previous paragraph, *i.e.*, ambient temperature, configuration, load, actual fan rotational speed, and standard component temperature, as well as other temperature information, none of which are a “position” or “location.” *Id.*, ¶¶69-70. Paragraph 25 states that “[t]he component temperature threshold value 19 ... is composed of ambient temperature, configuration, load, actual fan rotational speed, and standard component temperature.” EX1005, [0025]. Paragraph 31 states that the

“component threshold value generating unit” acquires “system information 8,” “temperature sensor information 12,” and “standard component temperature 15,” which correspond to the same information. *Id.*, [0031]; *see also id.*, [0015] (“system information 8” is “actual fan rotational speed 9, hardware configuration 10, load 11” and “temperature sensor information 12” is “ambient temperature 13” and “component temperature 14”). And paragraph 36 describes calculating the component temperature threshold values from “ambient temperature 13, actual fan rotational speed 9, hardware configuration 10, and load 11.” *Id.*, [0036]. To the extent Petitioners are arguing that “ambient air temperature” is a “location,” Petitioners do not explain how or why the ambient temperature identifies a “location”; and, in any event, as noted above, Petitioners contradict that argument by mapping the ambient air temperature to the claimed “intake air temperature,” and not the claimed “predetermined position.” Pet. 37; EX2009, ¶71.

Petitioners finally argue that the “standard component temperature thresholds” are determined “under various different, normal operating conditions (*a predetermined position of ICT equipment when a quantity of intake air into the ICT equipment is appropriate*).” Pet. 34. But Petitioners cite to no disclosure in Hira that supports this contention, and Hira teaches that the standard component temperature values are only associated with

predetermined “combinations of ambient temperature, configuration, load, and fan rotational speed”—but is silent about position. EX1005, [0024]; *see also* EX2009, ¶72. Petitioners' expert repeats this conclusory assertion without further analysis, explanation, or reference to Hira's disclosures. *See* EX1003, ¶127. Nor can Petitioners rely on expert testimony to supply this limitation when it is not disclosed in any of the prior art.³ Petitioners repeat a similar argument in a footnote, asserting that “the threshold values” correspond to “a given *environment* and configuration” (Pet. 35 n.9 (emphasis added)), but again do not cite to any disclosure in Hira in support of this assertion, and rely exclusively on an identical unsupported, conclusory statement by their expert (EX1003, ¶128). *See* EX2009, ¶¶72-73.

Accordingly, because the Petition fails to identify any disclosure of “predetermined position of ICT equipment” in Hira, Petitioners cannot meet their burden. EX2009, ¶74. Petitioners do not contend that Shiga discloses this limitation, and thus Shiga does not cure this deficiency in the Petition.

³ *See* USPTO Memorandum, “Enforcement and Non-Waiver of 37 C.F.R. § 42.104(b)(4) and Permissible Uses of General Knowledge in Inter Partes Reviews” (July 31, 2025) (“[E]xpert testimony, common sense, and other evidence that is not ‘prior art consisting of patents or printed publications’ (collectively, ‘general knowledge’) may not be used to supply a missing claim limitation. Per 35 U.S.C. § 312(a)(4), the Board shall deny an IPR petition that fails to comply with Rule 104(b)(4).”).

B. The Petition Fails to Establish that Hira Discloses or Renders Obvious Estimating Temperatures “When a Quantity of Intake Air into the ICT Equipment Is Appropriate” (All Claims)

Every independent claim requires “estimat[ing] an upper limit of possible temperatures ... *when a quantity of intake air into the ICT equipment is appropriate.*” The Petition relies exclusively on Hira for these limitations, but fails to establish that Hira discloses or renders them obvious. *See* Pet. 30-43 (1[b]), 69-70 ([8c]), 74 (Claim 9, “by an estimating unit...”).

As with “predetermined position,” the Petition fails to identify any disclosure in Hira that discloses estimating temperatures “when a quantity of intake air into the ICT equipment is appropriate.” EX2009, ¶¶75-77. In fact, the Petition cites to the exact same disclosures in Hira as for “predetermined position,” all of which are silent about the “quantity of intake air.”

Specifically, the Petition cites generally to the “standard component temperature 15” and “component temperature threshold value 19” as purportedly disclosing the full limitation (*i.e.*, “an upper limit of possible temperatures in a predetermined position of ICT equipment when a quantity of intake air into the ICT equipment is appropriate”) but fails to identify any part of the standard component temperature 15 or component temperature threshold value 19 that corresponds to a “quantity of intake air.” *See* Pet. 30-33; EX2009, ¶77. As discussed above, Hira only discloses that these

categories of information contain ambient and component temperatures, actual fan rotational speed, load, and hardware configuration—not a *quantity* of intake air. EX1005, [0025], [0031].

Nor does Hira disclose any details regarding *how* the categories of information associated with the standard component temperatures are measured or obtained that might otherwise suggest that any estimated temperature is determined for an “appropriate” “quantity of intake air into the ICT equipment.” EX2009, ¶78. Hira only states that the standard component temperature information is determined for different “combinations of system information,” *see* EX1005 [0013],⁴ and that it is “prepared during the design/development phase,” *id.*, [0024], neither of which teaches or suggests a quantity of intake air. EX2009, ¶78. Similarly, Hira’s component temperature threshold values 19 are only determined from the standard component temperatures 15, and not any additional information about a quantity of intake air. EX1005, [0025].

Failing to identify any relevant disclosure in Hira, the Petition again attempts to fill in this missing limitation with impermissible uncorroborated expert testimony. In particular, the Petition argues that the component

⁴ As noted above, the “system information” is limited to “actual fan rotational speed 9, hardware configuration 10, load 11,” not a quantity of intake air. EX1005, [0015].

temperature threshold values are determined under “normal operating conditions” and “with an operational fan and a filter that is not clogged,” which Petitioner purports to link with an “appropriate” “quantity of intake air.” Pet. 34-35 & n.9. But the Petition does not cite to Hira at all in connection with these arguments, and instead cites only to its expert, who repeats these same conclusory assertions verbatim without further analysis or reasoning. *See* EX1003, ¶¶127-128; *see also* EX2009, ¶¶79-80.

Accordingly, because the Petition fails to identify any disclosure in Hira of estimating temperatures “when a quantity of intake air into the ICT equipment is appropriate,” Petitioners cannot meet their burden. EX2009, ¶81. Petitioners do not contend that Shiga discloses this limitation, and thus Shiga does not cure this deficiency in the Petition.

C. The Petition Fails to Establish that Hira Discloses or Renders Obvious Estimating an “Upper Limit of Possible Temperatures” (All Claims)

Every independent claim requires estimating an “*upper limit*” (claims 1 and 9) or “*upper value limit*” (claim 8) of “*possible temperatures*” and “determin[ing] that an abnormality is occurring” when a detected temperature is “*beyond the upper limit.*” Here, again, the Petition relies exclusively on Hira. *See* Pet. 30-43 (1[b]), 69-70 ([8c]), 74 (Claim 9, “by an estimating unit...”).

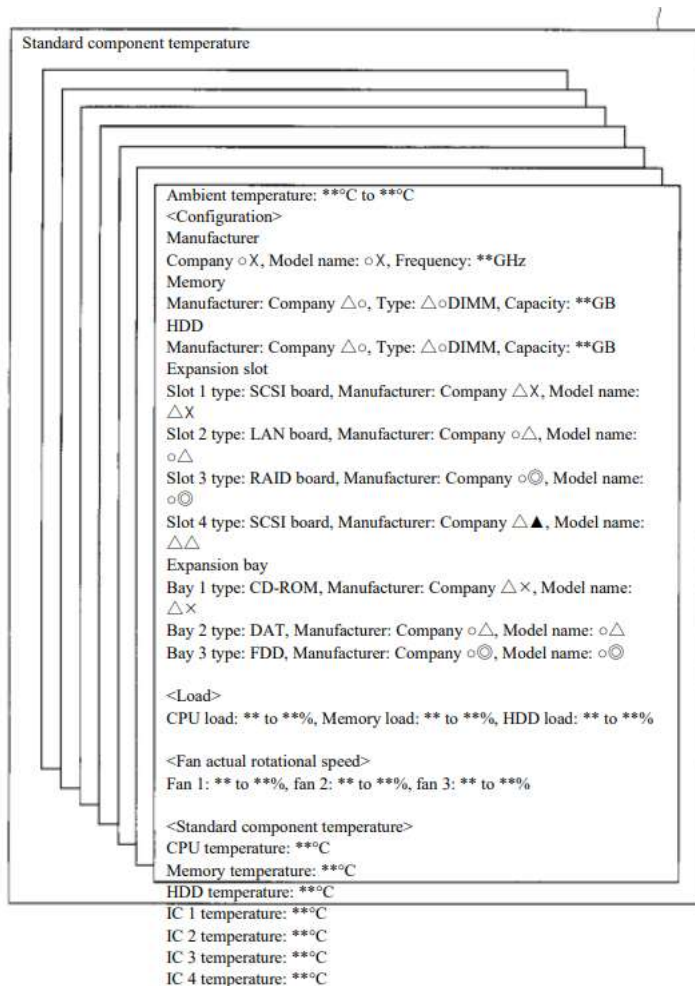
The Petition incorrectly argues that Hira's component temperature threshold value 19—and, specifically, the standard component temperature information selected as the component temperature threshold value—is the claimed “upper limit of possible temperatures.” Pet. 34 (“[T]he standard component temperature values are the expected component temperature thresholds (*upper limit of possible temperatures*)....”), 36 (“Hira ... generates component temperature threshold value 19 (*upper limit of possible temperatures*)....”). But Hira clearly discloses that the component temperature threshold value and standard component temperature information are not an *upper limit* of possible temperatures. EX2009, ¶¶82-84.

As discussed above, Hira's component temperature threshold value is “obtained by extracting component temperatures applicable to the current system status from standard component temperature 15,” meaning that “[t]he standard component temperature information within the component temperature threshold value 19 becomes the component temperature threshold value used when detecting dust filter clogging status.” EX1005, [0025]. But Hira's standard component temperature information by its own terms reflects the *standard* temperature of the component—and nowhere does Hira suggest that the *standard* temperature represents or is used as an upper limit. EX2009,

¶85. And in the broader context of Hira's disclosure, a POSITA would understand that it is *not* used as an upper limit. *Id.*

As shown in Hira's Figure 3, while Hira reports a range of values for certain parameters, such as ambient temperature (reported as “**°C to **°C”) and CPU, memory, or HDD load (reported as “** to **%”), the standard component temperatures are reported as a single value for each component (“CPU temperature: **°C). EX1005, Fig. 3. Hira never suggests that this singular value represents or can be used as a temperature *limit*. EX2009, ¶86. And if the standard component temperature is not itself Hira's limit, it does not provide a way to determine a limit (unlike, *e.g.*, a range of temperatures, which inherently provides a minimum and a maximum value that may be used to define limits). *Id.* And because the component temperature threshold value is just set to the standard component temperature for the applicable ambient temperature and system information, it is treated the same as the standard component temperature—in other words, it is not a limit. EX1005, [0025]; EX2009, ¶87. This is confirmed by how Hira actually detects a clogged filter—which is *not* by checking if the component temperature exceeds the threshold value, but by instead comparing a ratio (that Petitioner does not contend corresponds to the claimed upper limit) to an arbitrary and unspecified percentage, discussed below in connection with the “beyond the

upper limit" limitation, Hira's component temperature threshold value is not used as an upper limit—it is only used to calculate a ratio that corresponds to one of several filter clog statuses. EX1005, [0026]-[0027]; EX2009, ¶87. Thus, the threshold value cannot be an upper limit as it is used in Hira.



Apparently conscious of this deficiency in Hira, the Petition attempts to rewrite Hira's disclosure by arguing that Hira's "standard component temperature values are *the expected component temperature thresholds.*" Pet. 34 (emphasis added). Tellingly, however, the Petition does not cite to

any disclosure in Hira in support of this argument, because the word “expected” does not appear anywhere in Hira. EX2009, ¶88. Instead, Petitioners again rely impermissibly on its expert to fill this gap in Hira’s teachings. But Petitioners’ expert merely repeats the same conclusory statement—*i.e.*, that Hira’s threshold values are “expected upper limits”—without any reasoning or analysis, and without citing to any supporting or corroborating disclosure in Hira itself. *See* EX1003, ¶¶127-128.

Petitioners’ argument also defies common sense: the term “standard” suggests a typical or normal temperature, and Hira never suggests that this value is or can be used as an upper or lower extreme, and neither Petitioners nor their expert offer any argument or evidence as to why a POSITA would understand the term “standard” in the context of Hira’s disclosure to refer to an extreme, upper limit of temperatures. EX2009, ¶¶88-89. Petitioners’ attempt to rewrite Hira as disclosing an “expected” component temperature rather than a “standard” component temperature fails for the same reason: even if accepted as true, Hira never discloses that an “expected” temperature is or can be used as an upper limit of possible temperatures. *Id.*, ¶89.

Accordingly, because Hira fails to teach an “upper limit of possible temperatures,” Petitioners cannot meet their burden. *Id.*, ¶¶90-91. Petitioners

do not contend that Shiga discloses this limitation, and thus Shiga does not cure this deficiency in the Petition.

D. The Petition Fails to Establish that Hira Discloses or Renders Obvious Determining an Abnormality When a Detected Temperature Is “Beyond the Upper Limit” (All Claims)

Every independent claim requires “determin[ing] that an abnormality is occurring” when a detected temperature is “*beyond the upper limit.*” Here, again, the Petition relies exclusively on Hira. *See* Pet. 46-50 (1[d]); 71-72 ([8f]), 75 (Claim 9, “by a determining unit...”).

As noted above, Hira fails to disclose or render obvious an upper limit of temperature, and thus also cannot disclose or render obvious determining an abnormality based on a temperature that is “beyond the upper limit.” EX2009, ¶¶92-94. However, even if Petitioners’ erroneous mapping of Hira’s component temperature threshold value to the claimed “upper limit” were accepted (it should not be), Hira separately fails to disclose that an abnormality is determined when a detected component temperature is *beyond* the component temperature threshold value. EX2009, ¶¶95.

Specifically, Hira does not disclose using the component temperature threshold value as a litmus test for abnormal operation—in other words, merely exceeding the threshold is not indicative of an abnormality. EX2009, ¶96. Instead, Hira determines the clogging status of a dust filter by computing

the ratio of “actual component temperature to component temperature threshold value.” EX1005, [0026]. Hira then references a “clogging status table,” which associates a “clogging status” for different ratios, as illustrated in Hira’s Figure 6, reproduced below. *Id.*, [0027], Fig. 6:

FIG. 6

Actual temperature/temperature threshold value average value	Clogging status	Message
~%	~30%	No problems.
~%	30~70%	Please prepare to replace the filter.
~%	70~100%	Please replace the filter immediately.

21

Importantly, Hira does not explain *how* a particular ratio is associated with a particular clogging status, explaining only that the clogging status table is “prepared in advance during the design/development phase.” *Id.*, [0027]. Nor does Hira disclose any exemplary ratios and corresponding clogging statuses: Figure 6 only includes placeholder values, *i.e.*, “** ~ **%,” suggesting that any ratio may be associated with a particular clogging status. EX2009, ¶97. Thus, nowhere does Hira require or even suggest that when the detected temperature exceeds (*i.e.*, is “beyond”) the component temperature threshold value (in other words, when the ratio is greater than 100%), an abnormality is determined. *Id.*

The Petition acknowledges that Hira does not provide *any* disclosure as to *which* ratios indicate a clogged dust filter. Pet. 46-47 (“[T]he specific ratios indicating the ‘clogging status’ are left to the system designer....”). But relying again on conclusory expert testimony, Petitioners assert that a POSITA “would know ... that actual temperatures in excess of component temperature threshold values indicate a clogged dust filter.” Pet. 47; *see also id.*, 50 (“Hira’s clogging status detection unit 3 detects a clogged dust filter ... if the actual temperature exceeds the threshold temperature....”). But paragraph 27 of Hira—the only disclosure Petitioners or their expert cite to for this proposition—says no such thing. EX1005, [0027]; *see also* EX1003, ¶¶159, 167 (repeating the Petition’s assertions without offering any reasoning or analysis); EX2009, ¶98. Petitioners cannot import this missing limitation through their expert’s say-so.

Petitioners also claim that the mere use of the word “threshold” suggests that clogging is detected “when the actual component temperature ... exceeds the threshold temperature.” Pet. 47. But Petitioners’ argument defies logic because Hira’s threshold is never described as an upper limit, and is not used as a threshold to distinguish between a clogged and not clogged filter state. *See* EX1005, [0025]-[0027]. Nowhere does Hira suggest that any temperature that exceeds the threshold value indicates a clogged filter—in fact,

Hira teaches a completely different approach that compares a ratio to a predetermined set of percentage values. EX2009, ¶99.

Petitioners' argument is also undermined by Hira's express disclosures. Hira does not use the threshold value itself to detect a clogged filter. EX2009, ¶99. Instead, Hira computes a ratio of actual temperature to threshold value and uses that ratio to determine clogging status. EX1005, [0026]-[0027]. If any temperature that exceeds the threshold temperature represented a clogged dust filter, then Hira's clogging status table would be simple: a ratio above 100% (corresponding to an actual temperature higher than the threshold) would correspond to a clogged filter, and a ratio at or below 100% (corresponding to an actual temperature equal to or less than the threshold) would not correspond to a clogged filter. EX2009, ¶99. But that is not what Hira teaches. Instead, Hira teaches that different ranges of ratios "prepared in advance during the design/development phase" can correspond to different clogging statuses. EX1005, [0027]. Thus, unlike the '632 patent—which performs a binary determination of whether or not the component temperature exceeds an upper limit, *see* EX1001, 6:9-14—Hira compares the ratio of actual temperature to threshold value to some other, unspecified value that is never disclosed to be 100% (the only value that would correspond to detecting a temperature *beyond a limit*). EX2009, ¶100.

Patent Owner's Preliminary Response

Accordingly, because Hira fails to “determin[ing] that an abnormality is occurring” when a detected temperature is “beyond the upper limit,” Petitioners cannot meet their burden. EX2009, ¶101. Petitioners do not contend that Shiga discloses this limitation, and thus Shiga does not cure this deficiency in the Petition.

E. The Petition Fails to Establish a Reasonable Likelihood of Prevailing on the Dependent Claims

Because the Petition fails to establish that every limitation of any independent claims is disclosed or rendered obvious by Hira and Shiga, the Petition similarly cannot establish a reasonable likelihood of prevailing on any dependent claim.

IV. CONCLUSION

For the foregoing reasons, *inter partes* review should not be instituted.

Date: October 21, 2025

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CERTIFICATION UNDER 37 C.F.R. § 42.24

Under the provisions of 37 C.F.R. § 42.24, the undersigned hereby certifies that the word count for the foregoing document totals 4,309 words, which is less than the 14,000 words allowed under 37 C.F.R. § 42.24(a)(i).

Date: October 21, 2025

/s/ James M. Glass

James M. Glass (Reg. No. 46,729)

CERTIFICATE OF SERVICE (37 C.F.R. §§ 42.6(E), 42.105(A))

The undersigned hereby certifies that the foregoing document was served in its entirety on October 21, 2025 upon the following parties via

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